barograph, and a Redier's barograph. My observations, made alternately with these four, came to the same result. If the wind appeared to have lulled for a short time, there would be a sudden fall in the barometer of often more than two millimetres. A violent gust would then follow on the fall in the barometer, its strength varying in proportion to the fall of the barometer. During the gust the barometer would rise nearly as much as it had previously fallen.

From these observations, carried on through whole days, and often far into the night, it seemed to me that the cause of the gusts must be that slight, quickly passing depressions were over us.

If these observations are correct, and I can hardly doubt them, the suction of the wind is of secondary importance in considering the causes of the "pumping" ("oscillations").

I cannot allow myself to enter into all the interesting meteorological subjects that there presented themselves, and my views upon them, without trespassing too largely on the space assigned to me in these pages. I would only refer briefly to what I observed of the marked electrical activity in the telephone. It may seem strange to speak of a strong electrical development in winter, and I must confess to have been surprised on many days to hear a loud crackling at the telephone, so loud that it was almost impossible to speak through it. Still more astonished was I to see electric sparks going off from the electric plate ("*Blitz Platte*"). Unfortunately I had not time to examine this increased electric activity in its relation to the weather; but I fancied that a fall of snow with a south wind had most influence upon it. I requested Lechner to make daily observations of the crackling in the telephone, at a given hour, and to register the four stages—weak = 1, moderate = 2, strong = 3, electric sparks = 4. I have heard from him that he has been recording his observations five times a day, and, he thinks, with good result. A prolonged series of observations will easily determine its cause.

From these hastily collected extracts of my experiments and investigations on the Sonnblick, all must be satisfied of what great importance to science is the Observatory on its summit, and not less to Alpinists. It matters little how highly I prize it; my aim is to make its value known in wider circles.

But it behoves us, scientific men and tourists, not merely to wax enthusiastic over the Sonnblick Observatory, but to take measures to ensure its permanency. I am aware that the Alpine Club has already done its part,[1] and do not doubt but that in future it will shrink from no sacrifice to uphold and support this, its foster child, which, in conjunction with the Meteorological Society, it has brought into life. But I am inclined to think that there are nearer supporters of this our most important mountain Observatory, on whom there exists a prior claim. I am under the impression that certain influential members of the Alpine Club had been called upon to form a special Sonnblick Verein, part scientific, part tourist, who by a small yearly subscription should ensure the keeping up of this invaluable station.

My descent from the Sonnblick began on March 4, amid a storm of north wind, mist, and temperature at − 22° F. We rode down on miners' sledges (*Knappenrossen*), but even then had great difficulty in forcing a passage, snow having fallen knee-deep overnight. We often had to call a halt, and wade through the snow, thereby causing great delay; it took us two hours to reach Kolm, a distance usually accomplished in one.

On March 5 I reached Rauris; leaving on the 6th with Dr. Trabert for Lend. Even on these two last days, the weather followed us with unremitting severity. The way from Kolm to Rauris had been made under a heavy snowfall; and in the night of the 5th–6th there were such deep snow-drifts, that we were two hours making our way from Rauris to Landsteg.

On March 7 we reached Vienna.

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[1] The corporation of the Alpine Club has just signed an agreement with Herr Rojacher, by which it guarantees him a grant of 5000 fl. towards the enlargement of the Sonnblick Observatory.

BEDFORD COLLEGE.

SOME time ago we drew attention to the fact that Bedford College, which has done so much for the education of women, was in need of funds. The new laboratories are now in use, but they are not yet paid for, and the stock of apparatus is not all that could be desired. Our readers will remember that Mr. Henry Tate had promised a donation of £1000 provided the Council could raise a like amount from other sources. We believe that the College authorities are nearly in a position to claim his generous gift; but though this will free the building itself from debt, at least £500 more is wanted to pay for equipment on a very moderate scale.

The last twelve months have been, in matters educational, a ladies' year; but the true meaning of the successes which have been won at Cambridge and elsewhere will be missed, if they are regarded only as a nine days' wonder, or as proving *ambulando* that the higher levels of undergraduate attainment can be reached by girls. The lesson which has been so strikingly enforced is that no branch of learning is the exclusive property of either sex, and that girls are wronged if we do not afford them the same opportunities for acquiring knowledge which are provided for their brothers.

The founders of Bedford College acted on this principle when it was not so widely accepted and not so self-evident as in 1890, and we can only urge on the friends of the education of women not to forget, in the hour of their triumph, the toilers who have paved the way to their success.

In an unpretending building in an uninteresting London street an effort has for long been made to supply education of the highest class for London girls. Faith in the future and effort in the present have never been wanting, even when the story of the past seemed most discouraging. The College is now undeniably a success, but it is still sadly hampered by want of means. The adequate equipment of its laboratories is surely an object for which an appeal will not be made in vain to those who believe that the benefits which science can confer will never be fully attained till a knowledge of its main principles and methods forms part of the training of all educated men and all educated women alike.

NOTES.

WE regret to have to record the death of Mr. William Kitchen Parker, F.R.S., formerly Hunterian Professor of Comparative Anatomy at the Royal College of Surgeons. Next week we hope to give some account of his services to science.

A REUTER'S telegram from New York states that the remains of the Swedish inventor, John Ericsson, will be conveyed to Sweden by one of the two new American war-vessels, *Baltimore* and *Philadelphia*.

THE Dutch Academy of Sciences in Haarlem has offered a gold medal of the value of 150 gulden for the best work in each of the following subjects:—(1) Researches on the part played by bacteria in the decomposition and formation of nitrogenous compounds in various kinds of soil; (2) Microscopic investigation of the mode in which different parts of plants can unite with one another, and especially the phenomena which accompany healing after the operation of grafting. The papers must be written in German, Dutch, or Latin (not in the handwriting of the author), and must be forwarded to Dr. J. Bosseka Haarlem, by January 1, 1891.

THE list of Civil List pensions granted during the year ended June 20, 1890, includes the name of Dr. William Huggins, to whom has been awarded a pension of £150. As we have already noted, a pension of £50 has been granted to Mrs. Jane Eleanor Wood, widow of the Rev. J. G. Wood, and a pension of £20 each to the four unmarried daughters of the late Rev. M. J. Berkeley, F.R.S.

MR. DAVID S. CAPPER, Assoc.M.Inst.C.E., has been elected to the Professorship of Mechanical Engineering at King's College, London.

THE annual meeting of the Botanical Society of Italy will take place in Verona during the month of September.

FRENCH papers announce the death of M. Paul Loye, at the early age of 29. He was the author of a memoir on the physiology of death by decapitation, and had published many short notes on physiological questions. He had for some time been engaged in an elaborate study of the excretory functions of birds, concerning which he had collected many facts. M. Loye was assistant to Prof. Brouardel, and *Maître de Conférences* in the Faculty of Sciences of Paris, and had been Paul Bert's last assistant.

THE death of M. Alphonse Favre, at the age of 77, is announced. He was formerly Professor of Geology at Geneva, and was recognized as an authority on the geology of the Alps.

THE half-yearly general meeting of the Scottish Meteorological Society was held in Edinburgh on Monday, July 14. Lord McLaren presided. The following was the programme of business:—(1) Report from the Council of the Society; (2) address by the Chairman on the high and low level observatories of Ben Nevis; (3) on the meteorological conditions of desert regions, with special reference to the Sahara, by Dr. John Murray. In their report the Council express sincere regret at the death of Dr. James Stark, who long held the office of Superintendent of the Statistical Department in the Register House, Edinburgh, and gave very effective aid in founding the Society. The self-recording instruments, furnished by the Meteorological Council for the low level observatory at Fort William, arrived at the end of June, and it is contemplated that the regular work of recording the continuous observations will begin in August. The observations which have been carried on in Fort William by Mr. Livingstone in connection with those made at the top of Ben Nevis will be continued at least till the New Year, in order that a comparison may be made with them and the similar eye-observations made by Mr. Omond at the Observatory adjoining. It is arranged that Dr. Buchan's time will be wholly given, during next year, to the examination and discussion of the observations of the Ben Nevis observatories. In connection with this difficult and laborious undertaking, Mr. Omond will receive from the Meteorological Council three copies of their daily and weekly weather maps, on which he will enter certain of the meteorological data from the high and low level observatories, together with occasional remarks that may from time to time strike him as bearing more particularly on forecasting weather. The weather maps give two daily representations, with remarks, of the weather of Europe at 8 a.m. and 6 p.m. Thereafter, one of the three sets of maps will be sent to the Society's Office, the second to the Meteorological Office of London, and the third will be retained by Mr. Omond.

THE Council also refer to the observations of Mr. Rankin on the number of dust particles in the atmosphere, carried on with the two sets of apparatus invented by Mr. Aitken. Though it would be premature to offer a statement of positive results, the Council think that some interesting conclusions appear to be indicated by the observations. The maximum number of dust particles in a cubic centimetre hitherto observed is 12,862, on March 31, and the minimum 50, on June 15. On March 31, at 4.30 p.m., the summit was clear, and the number of particles was 2785, but shortly thereafter a thickness was seen approaching from south-west, which by 6 p.m. reached the Observatory, and the number of particles rose to 12,862. On June 15 many observations were made during the day, when the number of particles fell from 937 at midnight to 50 at 10.30 and 11.42 a.m. The observations point to a daily maximum during the afternoon minimum barometer, and a minimum during the morning minimum barometer—these being probably intimately connected with the diurnal ascending and descending currents of the atmosphere. Interesting intimate relations are also indicated between the numbers of dust particles and the cyclones and anticyclones over North-Western Europe at the time. The observations also indicate that the dust particles may vary enormously during the presence of mist or fog, without being accompanied by any difference in the apparent density of the fog. The Council consider that the inquiry is an extremely hopeful one; and in view of the relations with cyclones and anticyclones, its bearings as regards the forecasts of the weather will be very specially investigated.

FOR several years past it has been the practice of the Indian Meteorological Department to issue in the month of June a forecast of the prospects of the monsoon rains, based partly on the reported extent and thickness of the Himalayan snows, partly on the distribution of the atmospheric pressure, the small variations of which are found by experience to be remarkably persistent in India, and to serve as an indication of the probable strength of the monsoon, and alternatively of the prevalence of dry land winds. The forecast for the forthcoming season announces that owing to the very slight snowfall of Afghanistan, Baluchistan, and almost the whole of the Himalayan region, the conditions are eminently favourable for a good strong monsoon. The only unfavourable indication is that the past winter has been very severe in Yarkand, and perhaps in other distant parts of Central Asia. The pressure is unusually low this year in Bengal, and above the average in Central India and the northern half of Bombay, and the local pressure conditions considerably resemble those of 1876. It is therefore considered probable that while the eastern half of the Ganges valley, Assam, and Burma will receive early and abundant rain, the rains may be late and scanty over a considerable area of North-Western India.

THE Rev. E. Colin, S.J. Director of the newly-established Royal Observatory of Madagascar, at Tananarivo, has published the monthly results of meteorological observations at that place during 1889. As observations for Madagascar are scanty, we are glad to learn that observations are now taken at four stations in various parts of the island, and that others will shortly be established. The maximum temperature at Tananarivo, 87°·4, occurred on November 14, and the minimum, 41°·0, on July 31. Rain fell on 89 days; by far the greatest quantity falls between November and March. None fell in May 1889. The prevalent wind direction is between south-east and north-east. The Report contains summaries for the three other stations referred to, during 1889, and for Tananarivo from 1872–88. Some of the latter have never been published before, and form an important addition to our knowledge, but, having been made by various persons, may not be so trustworthy as those made at the Observatory.

THE meeting lately held at the Mansion House, under the presidency of the Lord Mayor, for the furtherance of the International Congress of Hygiene, which will assemble in London in 1891, was attended by many influential medical men and students of sanitary science. Sir Douglas Galton explained the object and organization of the Congress, to which delegates had been already appointed by all the leading Societies of Great Britain and of the Continent. He mentioned that in any case the cost of the Congress would be considerable—probably not less than £5000—and that an appeal would be made to raise the required funds and to make the gathering worthy of Great Britain. Among the subsequent speakers were Lord Wantage, Prof. Humphry, Mr. Ernest Hart, Sir Spencer Wells, Sir Henry Thompson, and Dr. Thorne Thorne. The organizing committee is now taking steps to raise a sum of at least £5000, and no doubt its appeal will receive a liberal response from some of the great Societies and Corporations as well as from private individuals.

In order to make the Parkes Museum, which is supported by the Sanitary Institute, available to all classes for the purpose of obtaining information on matters relating to hygiene and sanitary appliances, the Council have resolved to throw the Museum open free at all times except when meetings are being held.

The Medical Academy for Women at St. Petersburg is to be reopened. At its sitting of June 9, the municipality of that city voted a yearly grant of £3000 for the support of the Academy, and decided to give it the use of a house belonging to the municipality, and to open the city hospitals to the students. Private subscriptions fully guarantee the further existence of the Academy. It is hoped, therefore, that the Government will not oppose the reopening of the institution, which has already given to Russia no fewer than 698 lady doctors. The decision of the municipality was based upon a report by Dr. Archangelsky, who speaks very favourably of the work done by the eleven lady doctors who are in the employment of the municipality for the inspection of city schools and the poorer districts of St. Petersburg.

The joint meeting of the Essex Field Club and the Gilbert Club, held at Colchester on July 5, proved a great success in spite of the continuous downpour of rain which lasted throughout the day. Over fifty members of the two Societies assembled at 11.30 in the Castle Museum, where the Hon. Curator, the Rev. C. L. Acland, and Mr. H. Laver pointed out the objects of interest to the visitors. The party then visited Holy Trinity Church, wherein lie the remains of Gilbert, and which contains a mural tablet erected to his memory by his brothers. After inspecting the house in which Gilbert was born, and other places of local interest, the visitors adjourned to luncheon at the Red Lion Hotel, the chair being taken by Lord Rayleigh, who was supported by the Mayor of Colchester, the President of the Essex Field Club, and many well-known men of science and local residents. Among those present were Profs. D. E. Hughes, F.R.S., G. D. Liveing, F.R.S., J. Perry, F.R.S., R. Meldola, F.R S., and S. P. Thompson, Messrs. G. Kapp, J. Paxman, Conrad Cooke, and F. H. Varley. The Chairman made a short speech, in the course of which he alluded to the importance of Gilbert's work, and pointed out that, although it is to Gilbert that we are indebted for the theory that the earth is a great magnet, we are not much in advance of this position at the present time, as nobody has yet explained the origin of terrestrial magnetism. The Mayor of Colchester then took the opportunity of welcoming the two Societies to the town on the part of the inhabitants. After luncheon some of the party drove to the Vale of Dedham, rendered famous in art by the paintings of Constable, who was born at Flatford Mill in this district. In the evening a reception was given at the Town Hall by the Mayor and Mayoress. Many electrical novelties were exhibited, and an incandescent light installation was supplied from premises on the other side of the road, where plant had been erected by Messrs. Christy, Son, and Norris, of Chelmsford. An interesting piece of apparatus, constructed on the pattern of Crookes's radiometer, but working in air instead of in a vacuum, was exhibited by its inventor, Mr. C. E. Benham, who attributed its rotation to the action of convection currents. There were also on view exhibits by Messrs. Crompton, of Chelmsford, lathes and sewing-machines worked by an electric motor, and other objects of interest. Prof. S. P. Thompson delivered an interesting lecture on the early magnetic experiments of Gilbert, illustrating his subject by experiments shown with the projecting lantern. A vote of thanks was proposed by the Mayor, and seconded by Mr. J. Paxman, who remarked that he should like to see Gilbert honoured not only by a statue in his native town but also in a more useful way, such as by the foundation of a Gilbert Scholarship in connection with one of the Universities. A vote of thanks was proposed by Prof. Meldola on behalf of both the Clubs to the Mayor and Mayoress, to Dr. Laver, and Mr. J. C. Shenstone, all of whom had by their exertions contributed to the success of the day's proceedings.

In a paper on ornithophilous flowers, contributed to the *Annals of Botany*, Mr. G. F. Scott-Elliot records the very interesting observation that the Cinnyridæ or sun-birds, which play an important part in the fertilization of flowers in South Africa, have the same habit as the Apidæ in other countries—that is, of not "mixing their honey," but, on the same journey, confining their visits pretty much to the same species of flower. The species of sun-birds which are especially good fertilizers in South Africa are *Nectarinia chalybea*, *N. bicollaris*, and *Promerops caper*. In accordance with the view of Darwin, but opposed to that of Wallace, Mr. Scott-Elliot believes that the identity of colour (an unusual shade of red) in the majority of ornithophilous flowers and on the breasts of species of *Cinnyris* is an important element in pollination by birds.

A new little magazine, which ought to be of service to those who devote attention to questions relating to manual training, has just been started. It is called *Sloyd or Hand-Craft*. Its primary object is to acquaint the members of the Home Sloyd Union, and all those who are interested in the development of a distinctively English form of manual instruction, with the progress of the Sloyd system as practised in this country. But it is by no means intended to exclude what is being done in other directions for the purpose of making education more practical by means of hand and eye training, more especially as regards children from eleven to fifteen years of age.

By an Order in Council, dated June 30, 1890, which has been issued as a Parliamentary paper, it is prescribed that the following monuments in Ireland shall be deemed to be ancient monuments to which the Ancient Monuments Protection Act, 1882, applies :—

Monument.	County.	Parish.
(1) Cahernamactierech and Bee Hive Structures on the Promontory of Dingle ...	Kerry ...	Drumquim and Ballinroher.
(2) Round Tower, Lusk	Dublin ...	Swords.
(3) Round Tower, Kells	Meath ...	Kells.
(4) Stone Cashel with Galleries ...	Sligo ...	Cashelmore.
(5) Stone Circles and Pillar Stones ...	Fermanagh	Enniskillen.
(6) Round Tower of Tulloheran ...	Kilkenny ...	Tulloheran.
(7) Round Tower of Rathmichael, Church and Stone Cross	Dublin ...	Rathmichael.

A Californian salmon (*Oncorhynchus quinnat*, Günther) has recently been caught in the Mediterranean, near Banyuls. Probably it found its way thither from the River Aude, into which many young fish of this species have been introduced, in the hope that they may be acclimatized in France.

A portrait of the African explorer Captain Gaetano Casati forms the frontispiece of the May number of the *Bulletin of the Italian Geographical Society*. Casati reached Cairo early in May, and letters in the *Bulletin* deal with his journey to the coast with Emin and Stanley. An itinerary of his nine-years of travel shows that he left Suakin for Berber and Khartoum in January 1880. In July of the same year he started in a sailing-boat down the White Nile to Mishra-el-Rek, and thence on foot to Wau, where he met with Gessi at the end of September. He then threaded his way southwards among the feeders of the Bahr-el-Ghazal to the Congo basin, and for some time made Tangasi, on the Welle or Makua branch, a centre for exploration. Close by, at Mboro, in June 1881, he met with Dr. Junker. Finally, he made his way to Ladò, on the main stream of the White Nile; and there, at the end of March 1883, he met Emin Pasha for the first time. Thence he walked up the left bank to Wadelai, and continued the voyage up the Albert Nyanza by steam-boat. It was not until April 28, 1888, that the meeting between Emin Bey, Casati, and Stanley took place on the plateau above Kavalli to the south-west of the lake. The journey down the Semliki valley, the exploration of Lake Albert-Edward, and the return to Zanzibar, are recent history. The remaining papers of the number deal mainly with South America. The most interesting of these is that of Count Orsi di Broglia di Mombello on the sculpture of the primitive inhabitants of the Upper Orinoco. Many carvings on the stones of tombs have been discovered among the villages of this district; the sculpture is rough and fantastic, but evidently aims at reproducing certain natural objects. Thus, at the Grotto of Caicara, near the right bank of the Orinoco, many rocks carved in the primitive manner of the slate sketches of school-days, evidently exhibit an attempt to figure a tiger that is very common in this district. In neighbouring caves were found mummies closely resembling Egyptian ones; this the author regards as further evidence of the common origin of the two races, previously suggested by the striking similarity in shape of the skulls of the South American Indians and those found in the tombs of Egypt.

A Swedish Expedition to Cameroon is being arranged by the Academy of Sciences in Stockholm. The object of those who are to take part in it will be to study the fauna of the Western Cameroon Mountains, and to make scientific collections for the Academy. Herr Yngve Sjöstedt is to be in command of the Expedition, which is expected to be absent for about fifteen months.

We have received the following details of the researches in which Prof. Bastian is engaged on behalf of the Anthropological Museum of Berlin. In December last he forwarded to Berlin the results of excavations made at Tashkent; the terra-cotta vases and utensils all bearing strong evidence of Greek influence in their workmanship. During January he spent some time in Zanzibar and Mauritius, and at the latter place he was enabled to make a collection of Mascarene curiosities. From Tinivelly, in Southern India, he forwarded some bronze idols in February. March was spent at Malabar, April at Mysore, the beginning of May in Beloochistan, and the latter end of the month in Peshawar. Prof. Bastian has sent interesting ethnographical collections from all these districts.

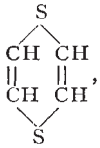
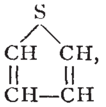
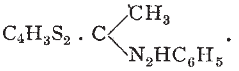
Sir Arthur Gordon lately received from the Pandits and Buddhists of Ceylon addresses in which, among other things, he was praised for the encouragement he had given, during his term of office, to science and learning. "Your Excellency," said the Buddhists, "with the laudable wish of preserving the philosophy and sciences contained in that most noble language the Pali, which is regarded by Eastern nations as the original language and the depository of the teachings of the blessed Buddha, as well as those found in the Sanskrit—the language of the gods—has caused many works, such as the 'Mahawansa' and others, to be translated into English, and given an incentive to the publication of Pali and Sanskrit works by allowing them to be printed at the Government Press." The Pandits took occasion to express a hope that Sir Arthur might still continue to exercise his influence on their behalf:—"It is with great pleasure that, whilst we gratefully express our thanks for the benefits already received at your Excellency's hands, we at the same time seize this opportunity of begging your Excellency not to relax your efforts on behalf of our literature and archæology, but to impress upon your Excellency's successor, as well as on Her Majesty's Government, the need not only to continue, but to increase, the exertions that are now being made to preserve the recollection of our glorious past, as an incentive to our countrymen of the present day to noble aims and heroic efforts in the future."

Some discussion has been going on in Ceylon of late over the question of the language spoken by the Veddahs, the aborigines of that country. The subject (says the *Colonies and India*) would seem to be one well worthy the attention of philologists, and the brothers Sarasin, who have been pursuing their anthropological researches in Ceylon lately, express the opinion that if a philologist were to take the matter up great service would be rendered to all those engaged in the work of scientific research in the island. Tennant says of the Veddahs, "Their language, which is limited to a very few words, is a dialect of Singhalese without any admixture from the Sanskrit or Pali—a circumstance indicative of their repugnance to intercourse with strangers." Prof. Schmidt, of the Leipzig University, who visited the Veddahs last year, says, "Their language is similar in construction to the Dravidian languages—that is, similar in grammatical construction; but they have adopted a great number of Singhalese words," which enabled him to hold converse with them by means of a Singhalese interpreter. The Drs. Sarasin also managed to make themselves understood by means of Singhalese.

In the last issue of the *Records* of the Geological Survey of India, Mr. Griesbach's mission to Afghanistan is thus referred to:—"Mr. Griesbach returned to India last July. His work with the Ameer was, as is now so very largely the case in the Survey, geologico-industrial, though this was greatly retarded by unforeseen political complications in the State. During his journey in 1888, up the Logar Valley to the Khurd Kabul Valley, Upper Wardak, Cherkh, Kharwar, Zanakhan, Ghazni, &c., the most interesting geological work was the recognition of at least three horizons: the Rhætic with *Lithodendron* (in Kharwar), the Upper Jurassic (or possibly Neocomian) plan-beds near the Shutargardan; and, finally, well-developed nummulitics (in Kharwar and Shilghar). He examined the copper lodes of the Logar and Khurd Kabul areas, the magnesite of the Logar and the entrance to the Taugi Wardak, the graphite of Cherkh, the iron and lead ores of Kharwar, and the argentiferous lead ore of Zanakhan near Ghazni. It turns out, also, that the entire Upper Surkh-ab Valley from near Doab-i-Mekzari to near Dahana Iskar is practically one big coal-field with numerous thick seams of good coal of Triassic and Rhætic age."

The official Report of the survey work done towards the close of the Chin-Lushai Expedition shows, according to the Allahabad *Pioneer*, that the Boinu River, which flows only six miles west of Haka, is undoubtedly the main stream of the Koladyne, which was so familiar in connection with General Tregear's movements. Captain Bythell, R.E., who was at first on the Chittagong side, accompanied General Symons on his tour southwards from Haka, and traced the stream to within twelve miles of where he had last seen it from the Blue Mountain side. It is satisfactory to have this confirmation of the statements sent by correspondents with the Field Force, particularly as the upper course of the Koladyne was unknown to our geographers. The total area of topography, by the way, covered by the operations of Captain Bythell's party, is put down at about five thousand square miles, while the surveyors on the Burmah side must also be credited with work on a similar scale. The new maps of the Chin-Lushai hills, when they come to be published, will no longer show those great blank spaces which have hitherto been so noticeable in the old issues.

IN Grinnell Land, at sea-level (81° 44′ N. lat.), the mean day temperature is above freezing-point from about June 13 to August 23, *i.e.* 72 days. It has been recently pointed out by Dr. Hann, that on the top of the Sonnblick, at a height of about 10,000 feet, and in 47° N. lat., the temperature returns above freezing-point about the same time (viz. June 8); but it is not till the end of September or beginning of October that it goes below that point again. On the other hand, the mean summer temperature on the Sonnblick is considerably lower than in Grinnell Land at sea-level.

BIOPHENE, 
, an entirely new compound intermediate between the fatty and aromatic series, and somewhat resembling thiophene in properties, has been prepared by Dr. Louis E. Levi, of the Massachusetts Institute of Technology, Boston (*Technology Quarterly*, May 1890). Thiophene, 
, was discovered by Prof. Victor Meyer in 1883; the discovery attracted considerable attention at the time, and has since led to the preparation of a whole series of derivatives analogous in many cases to those of benzene. Dr. Levi worked for some time in the laboratory of Prof. Meyer, and has subsequently followed up ideas then discussed, which have now resulted in the preparation of biophene. Just as thiophene is obtained by the action of phosphorus trisulphide upon succinic acid, so biophene is found to be produced by the action of trisulphide of phosphorus upon thio-diglycollic acid, $COOH—CH_2—S—CH_2—COOH$. A mixture of five grams of thio-diglycollic acid with ten grams of phosphorus trisulphide is heated, together with 15–20 c.c. of ether, in a sealed tube for two hours at a temperature of 170° C. After cooling, the end is opened at the blowpipe, when a great rush of accumulated sulphuretted hydrogen gas occurs. The contents of the tube are separated in the usual manner by means of a tap funnel, and washed with caustic potash solution. After withdrawing the alkali, the remaining oil is dissolved in ether and dried by means of fused calcium chloride. The ether is finally evaporated, and the residual oil fractionally distilled. As the result of this latter process, a liquid is eventually obtained boiling between 165° and 170°, which on analysis yields numbers agreeing with the formula of biophene, $C_4H_4S_2$. When biophene is mixed with sulphuric acid and a crystal of isatine added, a beautiful violet coloration is produced, a reaction which appears to be analogous to that of thiophene, which produces with sulphuric acid and isatine a dark blue coloration. Biophene also reacts with acid chlorides in presence of aluminium chloride like thiophene, thus with acetyl chloride aceto-bienone or bienyl acetyl ketone, $C_4H_3S_2 . CO . CH_3$, is produced, hydrochloric acid being eliminated. This ketone is a thick, heavy liquid which may be distilled in steam and possesses an aromatic odour somewhat resembling that of aceto-thienone. Heated alone aceto-bienone boils, but with decomposition, at 300°. Sunlight rapidly turns it dark brown. Aceto-bienone also reacts with phenylhydrazine with formation of a compound of the composition  $C_4H_3S_2 . C\begin{smallmatrix}CH_3\\N_2HC_6H_5\end{smallmatrix}$. The similarity of biophene in all the above reactions to thiophene and benzene is very striking, the replacement of two of the CH groups of benzene by sulphur not being accompanied by any very great change in chemical behaviour. The formation of biophene from thio-diglycollic acid, also affords another instance of the passage from the fatty series to bodies of aromatic properties, and biophene itself will stand as an additional link between the two series.

THE additions to the Zoological Society's Gardens during the past week include a Great Anteater (*Myrmecophaga jubata* ♀) from British Guiana, presented by the Directors of the Botanical Gardens, Demerara; an Egyptian Gazelle (*Gazella dorcas*) from Suakim, presented by Commander W. Crofton, R.N.; a Cape Ratel (*Mellivora capensis* ♀) from Suakim, presented by Captain J. F. M. Prinsep; a Jackal Buzzard (*Buteo jacal*), a —— Hawk Eagle (*Nisaetus spilogaster*) from Cape Colony, presented by Mr. W. H. Wormald; a Guillemot (*Lomvia troile*), British, presented by Mr. T. H. Nelson; a Greater Spotted Woodpecker (*Dendrocopus major*), British, presented by Mr. W. H. B. Pain; an Australian Crow (*Corvus australis*) from Australia, deposited; two Chinchillas (*Chinchilla lanigera*) from Chili, an Indian Chevrotain (*Tragulus meminna* ♂) from Ceylon, an Elate Hornbill (*Ceratogymna elata*), a White-necked Crow (*Corvus scapulatus*) from West Africa, a Large Grieved Tortoise (*Podocnemis expansa*) from the Amazon River, purchased.

OUR ASTRONOMICAL COLUMN.

OBJECTS FOR THE SPECTROSCOPE.

Sidereal Time at Greenwich at 10 p.m. on July 17 = 17h. 42m. 41s.

Name.	Mag.	Colour.	R.A. 1890.	Decl. 1890.
			h. m. s.	° ′
(1) G.C. 4361	—	—	17 57 9	−24 21
(2) G.C. 4415	—	—	18 22 44	+74 31
(3) 74 Herculis	5·5	Yellowish-red.	17 17 15	+46 21
(4) σ Ophiuchi	4	Yellow.	17 21 6	+ 4 14
(5) α Ophiuchi	2	White.	17 29 48	+12 38
(6) D.M. + 36° 3168 ...	8	Red.	18 28 31	+36 55
(7) R Lyræ	Var.	Reddish-yellow.	18 51 59	+43 48

Remarks.

(1) The spectrum of this remarkable nebula has not yet been completely examined. In 1868, Captain Herschel observed two lines in the spectrum, and, in addition, a decided continuous spectrum from the brightest point, which is "*not* stellar." These lines are stated to be ill-defined; and now that it is asserted by some observers that the nebula lines are always sharp, they should be re-examined with special reference to this point. Seeing that the brightest point is not a star, it will be well also to look for maxima of brightness in the con-